

Religion, Political Identity and Public Health Delivery*

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Abstract

This paper analyzes whether the religious identity of political leaders in India influences policy-determined variation in health outcomes, both for citizens of their religious group and for the population as a whole. In order to analyze the causal effect of the religious identity of politicians, we take advantage of the fact that some Muslim politicians contested in close elections against non-Muslim politicians. Results show that the presence of Muslim politicians significantly reduces infant and neonatal mortality, consistent with positive selection of Muslim candidates in constituencies in which Muslims have a population minority (Banerjee and Pande 2007). We do not find evidence of religious favoritism: Muslims and non-Muslims benefit equally from the presence of Muslim politicians.

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1. Introduction

Preference heterogeneity amongst voters suggests that minorities may be disadvantaged by policy choices made by democratically elected leaders. On the other hand, information or commitment problems may prevent politicians from implementing majority preferences as indicated by preferences of the median voter (Besley and Coate 1997). Identity politics may arise, with candidates from minority and majority groups seeking election on the promise of protecting the interests of the group with which they identify. We investigate religious identity, focusing upon identifying how the religion of the political leader influences policy determined variation in outcomes both for citizens of their religious group and for the population as a whole. It is conceivable that an elected leader from a minority group acts not only to reduce any inequalities in the allocation of public services but also works harder to establish non-partisan objectives and, in this way, delivers overall improvements.

This paper examines the consequences of electing Muslim politicians in India. India is a country of considerable religious diversity. While the majority of the population is Hindu, Muslims form a sizeable minority, constituting 13.4% of the population in the 2001 census. Muslims in India typically have lower incomes and educational attainment compared to Hindus, and they are also under-represented in elected office relative to their population share. Unlike for other disadvantaged sections of society, like lower castes, specific tribes or women, there are no affirmative action programs for Muslims in political, educational or economic institutions.

In this paper, we investigate whether the religious identity of elected legislators has an impact on a range of household health indicators and measures of public health provision. For this purpose, we construct a new database identifying whether the elected state legislator is Muslim or not, over the period 1980-2000. We then use within-district variation in Muslim political representation over time to investigate the effects of religious political identity.

Identifying the causal impact of politician identity is challenged by the potential for voter preferences to be correlated with both the religion of the elected leader and health indicators. For instance, regions in which Muslims are relatively prosperous may be regions in which Muslim candidates are relatively likely to be elected and if prosperity is

correlated with better health then it may appear that Muslim leaders improve health when in fact this correlation is independent of their agency. Our estimates control for a range of observables including the education and wealth of the individual household, and for unobservable heterogeneity using district and year fixed effects. To further allow for endogenous time-varying heterogeneity in voter preferences, we employ a fuzzy regression discontinuity design that involves instrumenting the overall share of Muslim legislators in a district-year with the share that are elected in close elections against Hindu candidates, while controlling for a polynomial in the vote margin. The premise is that the identity of the winner in a close election is random; regions in which the electorate largely identifies with one religion would not witness close elections.

We find that the presence of Muslim leaders leads to significant reductions in neonatal and infant mortality. We find no evidence of religious favoritism: the health and survival of Muslims does not benefit any more than that of Hindus when more Muslim leaders are in power. These are striking results. We suggest that these results may be driven by selection, by Muslims placing greater weight on maternal and child health (of which there is some evidence) and by their explicitly avoiding the charge of favoritism.

We estimate that a one standard deviation increase in Muslim political representation (which corresponds to an increase in the share of seats in a district held by Muslims of 16%) causes a 3.2% point drop in the infant mortality rate, which is 40% of the mean. Since the distribution of the district share of Muslim legislators is highly skewed, the standard deviation is larger than the mean. The mean is 8%. A one percentage point increase in the share of Muslims leaders results in a lowering of infant mortality by 0.2% points. This is still large, being close to the annual rate of decline of infant mortality in the period analyzed. Neonatal mortality shows similarly large improvements. These results are of topical relevance given the increasing politicization of religion in India and the growing if delayed recognition of the importance of improving health and survival.

There is related research on the relevance of the gender and ethnic identity of politicians for policy choices and development outcomes. For instance, the gender or gender affiliation of politicians (e.g. US Congressmen with and without daughters) influences their voting patterns on legislation related to women (Washington 2008). The provision of mandated political representation for women in village and district councils

in India has been investigated extensively: the increased presence of women in elected office has been found to alter the composition of local public goods (Chattopadhyay and Duflo 2004), change voter perception of women's leadership abilities (Beaman et. al. 2009) and increase the reporting of crimes against women (Iyer et. al. 2011). Women elected to state legislative assemblies in India are more effective in delivering broad-based public services (Clots-Figueras forthcoming, Bhalotra and Clots-Figueras 2011). The reservation of seats in state legislative assemblies for low caste candidates in India has increased state transfers to this group (Pande 2003), but the ethnic identity of the President of Guinea has had no impact on ethnic differences in infant mortality (Kudamatsu 2009). As women constitute about half the electorate, the issues associated with minority identity identified by ethnicity or religion are distinct from the issues of gender identity. We know of no previous evidence on the effects of politicians' religious identity, although this is a big divide on both policy preferences and outcomes in many countries.

The rest of the paper is organized as follows: Section 2 reviews the political setting in India, and how Muslims compare with non-Muslims in terms of human development and political outcomes. Sections 3 and 4 describe our data and empirical strategy. Section 5 details our results, including a discussion of the further analyses we plan to undertake, and Section 6 concludes.

2. Religion, Politics and Development in India

India is a country of considerable religious diversity and the constitution enshrines secularism. Muslims, constituting 13.4% of the population in the 2001 census, form the single largest religious minority in India. Their share in the population varies considerably across states, ranging from close to zero to more than 60% (Figure 1). They are a relatively large share of the population in the states of Jammu & Kashmir (the only Muslim-majority state), Bihar, Assam, Uttar Pradesh and West Bengal. Although their socioeconomic position is on average similar to that of the low caste Hindu population, there are political reservations for the lower castes but not for Muslims. A recent report to the Prime Minister's Office cites survey evidence that Muslims feel disenfranchised and somewhat marginalized in the allocation of public services and public sector jobs (Besant and Shariff 2007).

Muslims are systematically under-represented in state legislatures, compared to their population share in every state (Figure 1). It is symbolic that India has had several Muslim Presidents (the constitutional head of state), but no Muslim Prime Ministers (the de facto head of the executive branch). The share of Muslim legislators in the country as a whole has risen over time from about 7 to 10 per cent. There was a downward drift until about 1992, the year of a major religious conflict in the state of Uttar Pradesh, after which there has been a steady rise (Figure 3). Elections to state legislatures are held every five years, on a first-past-the-post basis in single-member constituencies. There are no “Muslim-only” parties, but some parties appeal more to Muslims than others.

India is a federal country, and the constitution gives significant policy autonomy to the 28 states. Health budgets and allocations are largely determined at the state level and supplemented by funds from federal programs. On an international scale, India’s health performance lags its economic performance, and public health provision is one of the state’s greatest embarrassments. In the period we consider, 1981-1998, only 38% of women had a full course of antenatal care, 67% of all births were delivered at home and 5.5% of births did not survive to the age of one month. The mean and standard deviation of indicators of public service provision including antenatal care and share of home births are similar across religion. Yet Muslim children exhibit a substantial survival advantage, a bit of a puzzle given that Muslims are a minority and, on average, are less educated and wealthy and have larger families (Bhalotra, Valente and van Soest 2010). This advantage appears to have narrowed over time (Figure 4). In contrast, the educational attainments of children vary by religion in line with expectation, with Muslim children lagging behind Hindu children. This begs the question of whether Muslim leaders have “favored” Muslim children and contributed to narrowing this gap, a question we explore in further work.

3. Data on Political Identity and Health Outcomes

3.1 Religious Identity of Elected State Legislators

We obtained data on state legislative elections from the Election Commission of India and they contain information on the name, sex, party affiliation and votes obtained by every candidate in every election held in India since Independence. We used a software program called *Nam Pehchan* to identify Muslim names (see Data Appendix). This software

was able to classify about 72% of the names, and we manually classified the rest so that overall, we were able to classify more than 99% of candidate names as either Muslim or non-Muslim. There may be errors in our classification, but this should be close to classical measurement error, and only serve to bias our coefficient downward. In the following section we explain how we use information on close elections, or elections in which a candidate of one religion wins by a narrow vote margin against a candidate of the other religion. As we have the votes won by every candidate we can test and vary our definition of close elections and we can control flexibly for the victory margin (positive or negative) by which a Muslim wins against a Hindu.

We aggregate our electoral variables to the level of the administrative district to facilitate matching with NFHS health outcomes data (see next section). The number of electoral constituencies in each administrative district varies considerably, with the average (median) district containing 5 electoral constituencies, and 95% of districts having 17 or fewer constituencies. The districts in question are the 1991 district boundaries, consistent with the districts used in the NFHS. Means of the electoral variables at district level are shown in Table 1, Panel A. In our final database, about 8% of legislators (i.e. candidates who won the election) were coded as Muslim. 64% of district-year observations had zero Muslim legislators; among districts with some Muslim legislators, most had less than 50% Muslim legislators (Figure 2). Over the period 1980-2000, there were at most 9 close elections (where the vote margin between the winner and runner-up was at most 5% of the total votes cast), and at most 5 close elections between a Muslim and a non-Muslim in a given district. 80% of district-year observations had no inter-religion close elections, while 15% of district-years had exactly one such close election. The distribution of close elections across states is shown in Figure 5; the fraction of close elections at the state level ranges between about 2% and just under 6%. There is no trend in the fraction of close elections over time, which has hovered around the 3% mark for the country as a whole.

3.2 Data on Health Indicators

Health indicators at the mother or child level are drawn from the National Family Health Survey of India (NFHS) conducted in 1998-1999, part of the Demographic and Health

Survey (DHS) series for India.¹ Mothers in the age range 15-49 years at the time of the survey are asked to record their birth histories and any deaths. The birth histories lend us two advantages. First, recorded births and deaths go as far back as 1961. This allows us to construct individual level childhood mortality risk indicators that vary over time and can be matched to changes in Muslim representation over time. We focus on neonatal and infant mortality, defined as dummies for whether the child died in the first month and the first year of life respectively.

Mothers are asked detailed health-related questions pertaining to births in the three years preceding the date of the survey. We define indicators for complete antenatal care, number of antenatal care visits, births delivered at home, a government facility and a private facility, whether breastfeeding was initiated in the first 24 hours after birth, whether the mother had a tetanus injection during pregnancy and whether she was given or purchased iron supplements during pregnancy. In the next version of the paper we will incorporate immunizations, birth weight, anthropometrics of children and the BMI and anemia status of the mother. Each of these indicators has established impacts on child health and survival.

For mothers interviewed in 1998/9, we have information on births since 1995/6. The within region variation in this short period is naturally smaller than in the longer period available for mortality but it is still considerable. For example, the within district standard deviation (s.d.) of the share of Muslim legislators is 0.064 around a mean of 0.083 and the within district s.d. of home births is 0.39 around a mean of 0.67. There is no health indicator for which the within group s.d. is worryingly small. Table 1, Panel B provides overall, between and within group summary statistics for all variables used in the analysis, flagging the window length for different estimation samples.

The NFHS does not identify the electoral constituency of the respondent but does identify the district in which the individual is born (child) or resides (parent). We therefore aggregate the electoral data from the constituency level, and match each survey respondent to her district's political variables. Since the indicators we use are for health behaviors in pregnancy and at birth and health outcomes soon after birth, we match

¹ Other waves of the NFHS, such as the ones conducted in 1992-93 or 2005-06, do not contain district identifiers, which prevents us from matching health outcomes to the religious identity of the local legislator.

outcomes specific to an individual child with the religious composition of elected politicians in their district in the year before their birth.

The estimation sample is restricted to Hindu and Muslim families. It contains more than 160,000 births of about 60,000 mothers that occur during 1981-1998 in 412 districts in 22 states.

4. Empirical Strategy

The relationship of interest is

$$Y_{idt} = a + b M_{dt} + e_{idt}$$

where Y_{idt} is the health outcome for individual i born of mother m in district d and year t , and M_{dt} is the fraction of constituencies in the district held by Muslim politicians during the year before the individual was born. The key identification challenge is to estimate the causal effect of the religion of politicians on health, b , by separating this from any effects of omitted variables that may drive both health and religious representation. The omitted variable could be electoral preferences in the district. Even if district fixed effects are included in the regression, these control only for permanent differences across districts in religious representation and the outcome variables, and we cannot rule out the possibility that there are omitted variables that vary within a district over time.

We therefore use information on close elections between non-Muslim and Muslim candidates. Close elections are elections in which the difference in votes between the winner and the runner-up is small. The outcome of elections in which the vote difference between the two candidates is small may be regarded as random. The identity of the winner will be determined by chance elements such as marginal changes in turnout determined for instance by the weather on the election day. The essential argument is that Muslim candidates who barely win an election against a Hindu do so in constituencies where there is no clear underlying preference for Muslim politicians since the Hindu politician is just as likely to have won. We show that in the sample of close elections, districts in which the winner is Hindu are matched on a range of relevant observables to districts in which the winner is a Muslim (results available on request). On this basis we instrument the fraction of all seats in a district won by Muslim politicians with the fraction

of seats in the district won by Muslim politicians in a close election against a Hindu politician. Close elections are defined as election in which the winner won the runner up by a margin of less than 3% of votes, and in the paper we also report results when the margin is less than 5% of votes. Results hold with lower margins, but this is not reported in the current version of the paper.

Even if the outcome of close elections can be considered essentially random, the existence of close elections between Muslims and Hindus in a given district and year may not be a random event. For example, it may depend on the number of Muslim candidates in the district. We therefore control in both stages for the fraction of seats in the district that were contested in close elections between Muslim and Hindu candidates. So as to approximate a (fuzzy) regression discontinuity design, we control for polynomials of the victory margin (positive or negative) in every close election in the district. The estimated model is

$$(1) \quad Y_{imdt} = a_m + \theta_d + \psi_t + \beta M_{dt} + \lambda TC_{dt} + \sum_{j=1}^N a_{1j} I_{jdt} * G(m_{jdt}) + \sum_{j=1}^N a_{2j} I_{jdt} + X_{imdt} \eta + \varepsilon_{imdt}$$

$$(2) \quad M_{dt} = a_m + \theta_d + \psi_t + \kappa MC_{dt} + \mu TC_{dt} + \sum_{j=1}^N \vartheta_{1j} I_{jdt} * G(m_{jdt}) + \sum_{j=1}^N \vartheta_{2j} I_{jdt} + X_{idt} \sigma + u_{idt}$$

The model is estimated using two-stage least squares, where equation (1) is the second stage and equation (2) is the first stage. To allow for observations in the same district to be correlated across families and across time, the standard errors are clustered at the district level.

The fraction of constituencies in the district that were won by a Muslim politician in a given election year, M_{dt} , is instrumented with the fraction of constituencies in the district won by a Muslim in a close election against a Hindu in the same year, MC_{dt} . The fraction of constituencies in the district in which there were close elections between Muslims and Hindus, TC_{dt} , is controlled for in equation (1) and partialled out of the instrument in equation (2). m_{jdt} denotes the margin of victory or defeat of each of the Muslim candidates who contested against a Hindu in the Hindu-Muslim election j in the district. We control for these margins linearly, and with second and third order polynomials, denoted $G(m_{jdt})$. These polynomials are interacted with I_{jdt} , which is an indicator for whether there was a Hindu-Muslim election j in the district.

Regression discontinuity has been widely used and has been previously used in the context of elections by Lee (2001) who studies incumbency advantage, by Pettersson-Lidbom (2001) who looks at the effect of party control on fiscal policies and by Lee, Moretti and Butler (2004) who estimate the effect of the degree of electoral strength on legislators' voting behavior. Our approach of using an IV strategy with a fuzzy regression discontinuity (arising because we aggregate the constituency level discontinuity to the district level to get a share which is not as sharp) has antecedents in the work of Angrist and Pischke (1999) who estimated the effect of class size on educational achievements, the work of Angrist and Pischke (2007), Clots-Figuera (2011) and Bhalotra and Clots-Figuera (2011), all of whom estimate related specifications to investigate the impact of the gender of elected politicians.

Our baseline specification uses district fixed effects θ_d which account for sluggish demographic characteristics (including the share of the district population that is Muslim), the slowly moving component of health infrastructure and time-invariant voter preferences. In an extension we investigate mother fixed effects, a_i . These control much more effectively for fixed local characteristics and additionally for relevant traits of the mother including her health-seeking and voting behaviors. This specification is effectively comparing siblings born under different political leaders of different religions. All estimated specifications include cohort fixed effects ψ_t that afford a flexible representation of aggregate shocks or nationwide policies **that through changes in income or in religious identification, for instance, may have influenced both health services and the religion mix of politicians.** X_{idt} is a vector of individual-level control variables including dummies for individual religion, gender, rural vs urban residence and whether the individual belongs to a scheduled caste or tribe (which we loosely refer to as “low caste”).

We plan to conduct a series of robustness checks, the results of which will be incorporated in a forthcoming revision of the paper. We investigate restricting the sample to districts with close elections between Hindu and Muslim candidates, and we implement a regression discontinuity regression for districts with exactly one close election. Using the baseline sample, we allow for non-linearity in the relationship between health outcomes and the share of Muslim leaders. We experiment with alternative vote margins in identifying close elections. While the baseline model looks at the impact of political identity in the year before birth, we investigate alternative assumptions regarding the

timing of any effects. We also allow for duration of exposure to a given political regime. We conduct a placebo that involves regressing health outcomes on the future political regime in the region. The equation is re-estimated dropping the outlying state of Jammu and Kashmir. It is re-estimated for the five states with a relatively high share of Muslims in the population and in the legislature. It is also re-estimated separating the periods pre/post 1995 for reasons discussed in the Introduction. Although India has had only a scattering of female Muslim legislators (Roy 2005), we will also investigate whether religion and gender of the political leader interact in the delivery of health services.

5. Preliminary Results: Politician Religious Identity and Health Outcomes

The nonparametric relationship of infant mortality and the share of Muslim political leaders at the district level is clearly negative (Figure 6a). This suggests that Muslim leaders are in general “good for health”. It is linear for shares greater than 20% but most of the data lie to the left of this point, and the relationship here is non-linear. We allow for this in an extension by replacing the share of Muslim-held seats in the district with a set of categorical share indicators. While the nonparametric plot is informative of the general tendency in and the functional form of the relationship, it is unconditional. The negative relationship we observe could, for example, simply indicate that districts with a relatively high share of Muslims are (a) more likely to elect Muslim leaders and, (b) more likely to have lower infant mortality rates, given previous evidence of a “religion fixed effect” that favours Muslim child survival (Bhalotra, Valente and van Soest 2010). So as to put aside this particular concern, we plot the curve again using the district share of Muslim political leaders who won against Hindus in close elections (Figure 6b). A negative relationship is still evident. We now investigate whether this stands up to controls and, subsequently, to instrumental variables estimation.

We first estimate the effects of Muslim legislators on child survival outcomes (neonatal and infant mortality) using OLS. The results are shown in Table 2, using a specification which controls for district and year fixed effects and household level demographic controls. The fraction of Muslim legislators does not appear to have any statistically significant effect on child survival outcomes, whether measured by neonatal mortality (columns 1-2) or infant mortality (columns 5-6). We test whether Muslim families are differentially affected by including an interaction term of Muslim dummy with

the fraction of Muslim legislators. The presence of Muslim legislators appears to be positively correlated with infant mortality of Muslim infants (column 7). Since Muslim children have higher survival rates on average (irrespective of the religious composition of political leadership in their region), a potential interpretation of this seemingly odd finding is that Muslim leaders act to lower health inequalities. But it is more likely that the OLS results reflect selection bias in the places which elect Muslim legislators, which we expect the IV estimates to resolve.

The IV estimates are in Table 3; we have verified that the first stage is statistically significant and that the instrument has good power (results available on request). The 2SLS estimates show that increases in Muslim political representation lead to statistically significant and substantial reductions in neonatal and infant mortality (columns 1 and 5); the coefficients remain similar if we control flexibly for polynomials in the victory margins in all close elections in the district (columns 2 and 6). The coefficients are smaller when we use a 5% vote margin to define close elections rather than a 3% margin (columns 3 and 7), though the results remain significant at the 10% level for infant mortality. Interestingly, the presence of Muslim legislators does not appear to bring any differential benefit to Muslim families, suggesting that Muslim legislators are not willing or able to target any specific benefits towards Muslim families in particular (columns 4 and 8). If anything, the results suggest that Muslim families receive lower mortality reduction benefits from the presence of a Muslim legislator.

Finally, we present preliminary evidence on indicators of health care received by mothers (Table 4). We are unable to detect any significant impact of Muslim leadership on any of the indicators of health service provision or utilization, either in OLS or in the 2SLS specification. However, we should note that all the 2SLS estimates are large and positive, suggesting that there might be some positive effects on the provision of ante-natal care which we do not have statistical power to detect. So we cannot identify in what specific way Muslim leaders act to improve child survival. Estimates with mother fixed effects and results of the series of robustness checks indicated earlier are discussed in a forthcoming version of this paper.

What do we make of the finding that the presence of Muslim leaders results in better child survival outcomes in India? Our research strategy makes it unlikely that this is the result of selection in the sense of voter preferences driving a spurious correlation

between the election of Muslim leaders and child health outcomes. We suggest but do not test three alternative hypotheses. First, even if our research strategy ensures that their election is random, Muslim leaders elected in close runs against Hindus may be more competitively selected than Hindu leaders. This may make them relatively progressive and hence more likely to tilt the composition of government spending in favor of public services. While we have no direct evidence of this, there is some evidence from case studies in India that women leaders, a similarly rare commodity, are relatively educated and high “class” (Rai 2002). A test of this hypothesis requires data on education and other characteristics of elected leaders.

A second possibility is that, irrespective of their socioeconomic position, Muslim people and hence also Muslim leaders place greater value on the health of women and children. Bhalotra, Valente and van Soest (2010) provide evidence that Indian Muslims experience lower neonatal and infant mortality despite their average socioeconomic status being weaker but they are unable to identify whether this reflects differences in technology or preferences. They argue that Muslims have weaker sex preferences as a result of which mothers are healthier, which is relevant since maternal health is an important determinant of child health (Bhalotra and Rawlings 2011). Both of these explanations rest on Muslim leaders shifting allocations in favor of broad-based public services, and the weight of the second against the first may be assessed by investigating how educational outcomes respond to Muslim vs Hindu leaders.

A third possibility is that with a given commitment of resources for health (or education), Muslim leaders work harder to improve service quality for *everybody*, because they are from a minority group and need to put in extra effort in order to attract votes from the majority community. This third possibility is also a potential explanation of the finding that there is no religious favoritism, since such bias is unlikely to be electorally profitable.

How do we reconcile our finding that Muslim leaders generate improvements in child survival rates with our finding that they have no impact on a range of indicators of public service provision and utilization? Since the estimation sample for the survival equations is much larger (~10 times as large; see section 3) we might argue that we simply don’t have the statistical power to detect impacts for the health services variables. Alternatively, the parameters of the relationship may have changed over time. The

survival equations are estimated on data for 1980-1998 while the health service indicator equations are on data for 1995-1999. We argued earlier that the behavior of Muslim leaders may have altered after the resurgence of religious tension in the early 1990s.

A more substantive potential explanation is that Muslim politicians act on survival inputs that are not in our set, for example, clean water and sanitation. But then one must ask if there is an *a priori* reason why they would improve water and sanitation but not antenatal care. In fact a possible answer is that, once provided by the state, clean drainage and piped water are effective. In contrast, breastfeeding or delivering births in hospital facilities involves not only availability of information and services but willingness to take them up. Early breastfeeding rates are strikingly low in the UK despite availability of information and services (Del Bono et al. 2011). The *Chiranjeevi* program in Gujarat which provided vouchers for (free) delivery at government facilities had low uptake (La Forgia et al. forthcoming).

If Muslim leaders put in place a suite of interventions that widen access to and uptake of basic health services and these interventions catch the “lower hanging fruit”, they will tend to lower health inequalities. Since Hindu children have lower survival chances, their survival chances will tend to improve and this will be reflected in the average impacts we obtain since Hindu births are 85% of the estimation sample. The utilization rates of health inputs such as antenatal care and place of delivery are very similar on average across Muslim and Hindu families, a fact that may suggest that a greater effort is needed to impact these indicators.

While no more than suggestive, this explanation reconciles two features of our findings: (i) that we find a positive impact on survival but no impact on variables like antenatal care and (ii) although the religious identity of political leaders leads to improvements in population health there is no evidence of greater improvements for families that share the religion of the leader.

6. Conclusions

We use unique data on the religious identity of politicians elected to state assemblies in India to investigate whether there is any evidence of religious favoritism in the allocation of health-related public services at the district level. Using rich individual data that record the use of health services around pregnancy and birth and early childhood survival rates

for the period 1980-1998, we find no evidence of partisan behavior. However we find that increasing the share of Muslim leaders improves child survival chances in the population at large. We suggest that Muslim leaders who win against Hindus in close elections may be more competitively selected, in which case it would be their characteristics (e.g. education) rather than their religion that counts; that they may reflect the wider tendency for Muslim people to value health and possibly maternal and child in particular; or that being of a minority group they may be incentivized to work especially hard at making their mark. We are, at this stage, unable to identify the channels through which improvements in child survival are generated by changes in the religious identity of leaders, but improvements in antenatal and related services appear not to be a relevant channel. We suggest that “more public” public goods such as clean water and sanitation are a possible avenue. These are preliminary results and we are conducting further robustness checks and investigating extensions of the main model.

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Data Appendix

Identifying religion of political candidates by their name

Nam Pebchaan (which is Hindi for Name Recognition) is software made available to us by Bradford City Council and Health Authorities. It uses a lookup table or dictionary to identify names as South Asian (Indian subcontinent or Sri Lankan). The primary validation of the program was done on West Yorkshire populations. The program works by matching parts of a name (stems) to lookup values. Essentially any name can be supplied, (first name, surname or both, but more matching can be done with the full name supplied). A match can be on a full name or simply on a stem or suffix to a name. Where a name element is matched as South Asian, further lookups are done to match gender, religion and language of the component. Since multiple religions or languages could be identified in the elements of one name, the marker codes are then analysed to produce a single code. Where instances of multiple languages matches occur, then they can be scanned to see what religion associations they have or a clash table if this cannot be resolved by reducing the matches (if "Common" is matched to a part of a name it can be excluded from further analysis) via an interim result.

Definitions of survival and health variables

Neonatal mortality refers to death in the first month of life. *Infant* mortality measures mortality in the first year of life. To allow for age-heaping in the data, which tends to occur at one, six, twelve months and sixty months, we define all of the mortality indicators as inclusive of the terminal date. The samples used for regressions are adjusted to allow every child full exposure to the relevant risk. For example, for analysis of infant mortality, we drop children born less than 12 months before the date of the survey.

Place of delivery is classified as being either home or at a facility and facilities are further classified as government *vs* private. We construct three indicators corresponding to these place alternatives. *Breastfeeding* is very prevalent in India so we do not use an indicator for whether or not it occurs. The NFHS data contain detailed information on initiation of breastfeeding and its duration. Its duration is often interrupted by disease or death of the child or illness of the mother, so we do not use it. Instead, we define an indicator for whether or not the mother initiated breastfeeding in the first 24 hours

following the birth. Indian and especially Hindu mothers often sacrifice the first milk, containing colostrum, to the earth as a matter of tradition. Colostrum contains nutrients and antibodies that are especially important in an environment where under-nutrition and disease are prevalent.

We investigated five measures of *antenatal care*. The first indicates complete care which is defined, in India, as at least 3 antenatal care visits, at least 1 tetanus shot & use of iron folic tablets. The second indicates whether a visit was made in the first trimester. This is recommended by professionals as it helps spot problems early. The third is the total number of antenatal care visits sought during pregnancy. The fourth is the number of visits received from a health worker and the fifth is the total number of visits.

In future work, we will also use three measures of *child vaccinations*, all of which are analysed for the sample of children who have survived infancy, which means we exclude any children who died before the age of one but we also drop children born less than a year before the survey date. This is because a basic course of immunization is expected to be spread across the first year of life. Our first measure indicates full immunization and this is defined as 3 DPT, 3 Polio and 1 measles shot by the age of one year. The second is a dummy variable for some (non-zero) immunizations. The third is the total number of vaccinations had.

Figures and Tables

Figure 1: The state distribution of Muslim representation in politics and in the population

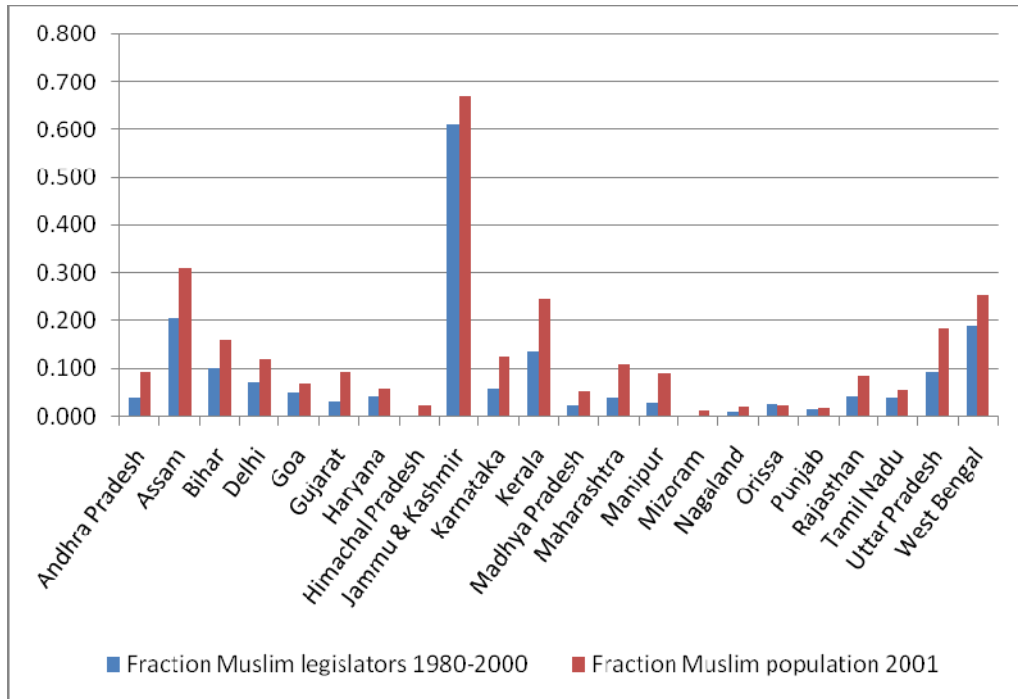


Figure 2: Density of district share of Muslim legislators for districts with a non-zero share

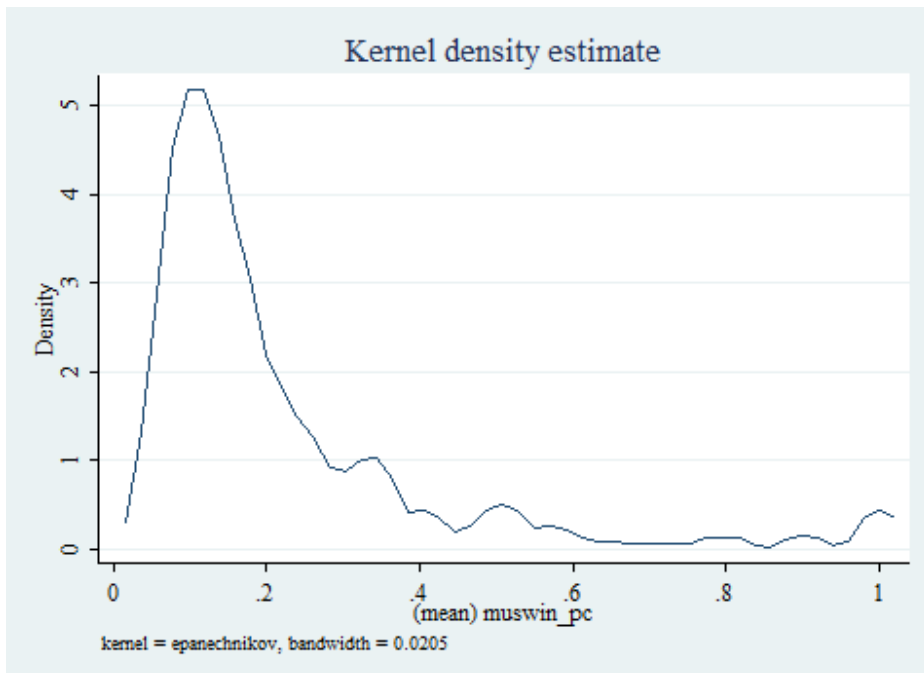


Figure 3: Trends in Muslim political representation over time

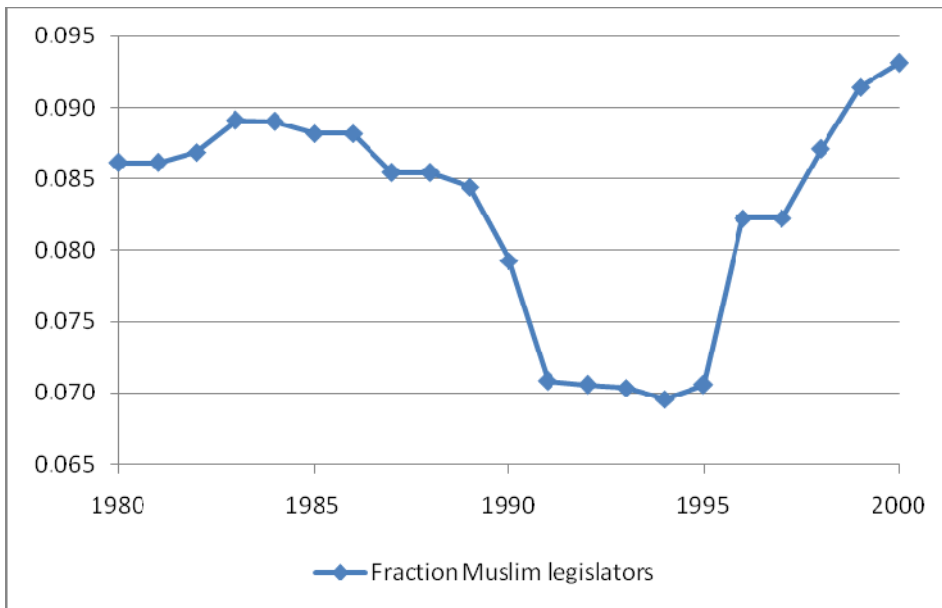


Figure 4: Trends in infant mortality rates by religion

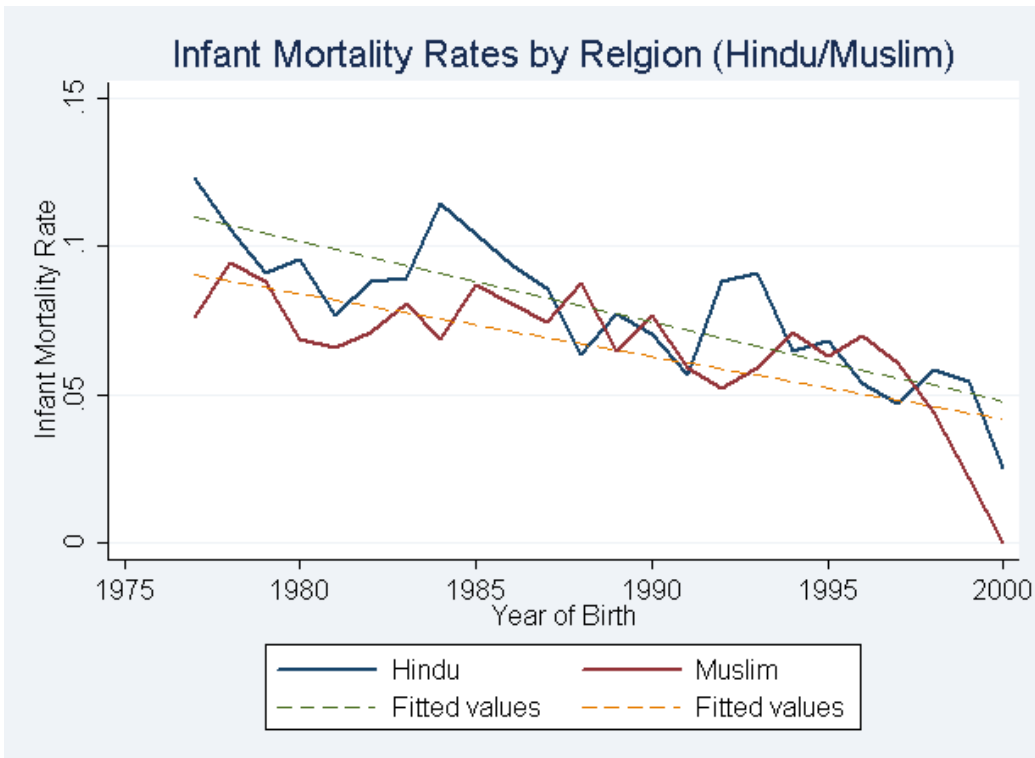


Figure 5: Distribution of close elections between Muslims and non-Muslims across states

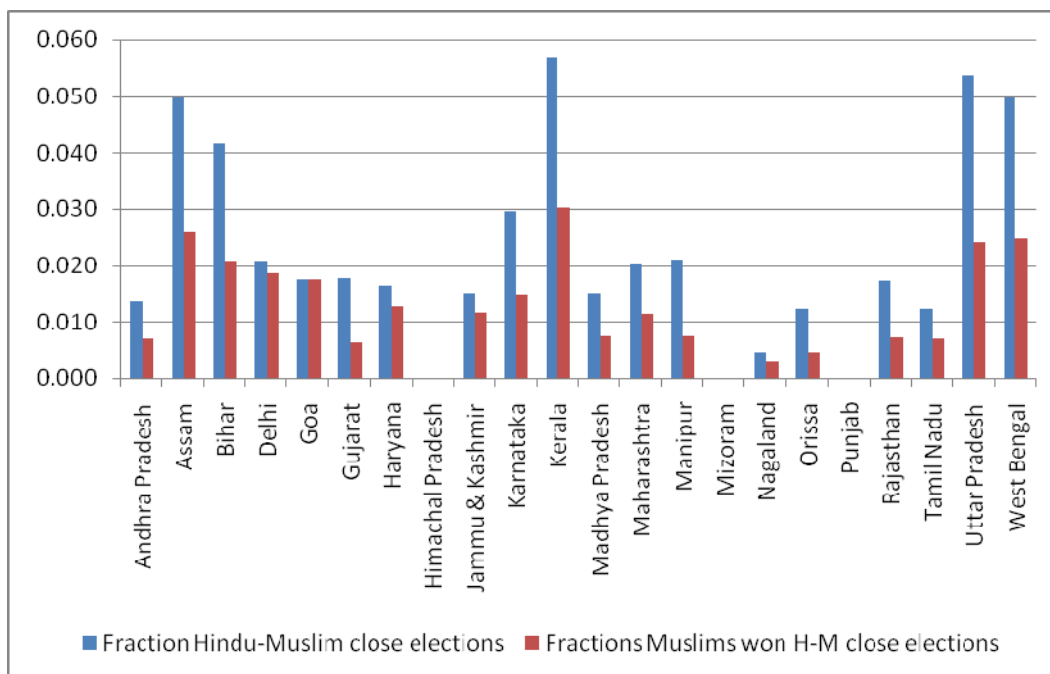


Figure 6a: Non-parametric unconditional relationship of health and religious identity of politicians: district-year means for 1980-2000

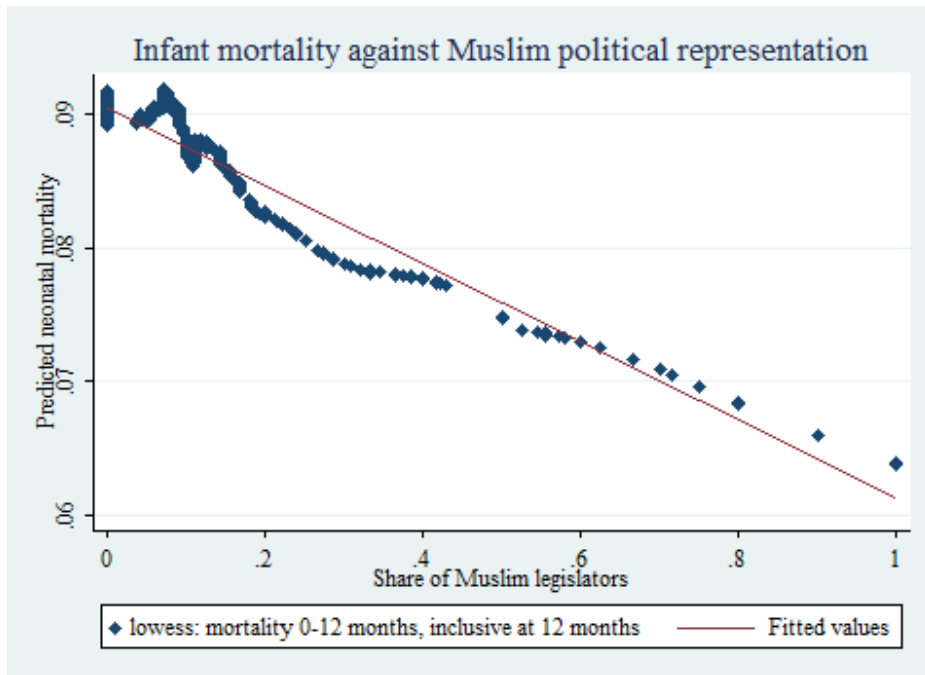


Figure 6b: Non-parametric unconditional relationship of health and religious identity of politicians *using close elections only*: district-year means for 1980-2000

